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| 10/088,190      | 03/14/2002  | Randall L. Barbour   | 0887-4167           | 1512             |

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08/27/2003

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EXAMINER

LIN, JEYUHU

ART UNIT

PAPER NUMBER

3737

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/088,190

Applicant(s)

BARBOUR, RANDALL L.

Examiner

Jeoyuh Lin

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-19 and 22-25 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

-Claims 1-7, 10, 19, and 22-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Izatt et al. (US 6,006,128).

Izatt teaches an optical coherence tomography device for imaging Doppler flow, comprising the following:

-Directing energy into a target medium from a source during a period of time, which would inherently disturb and provoke a target medium, wherein the target medium has a dynamic property, such as blood flow in a vessel. (Column 6, line 50)

-Measuring the density of the energy emerging from the target medium, density of energy is a function of the dynamic property of the target medium, such as blood velocity. (Column 11, lines 10-35)

-Generating a map of dynamic properties of the target medium based on measured density of energy from the target medium. (Column 13, lines 24-33)

-Generating a times series images, as claim 2 discloses. (Column 10, lines 14-19)

-Processing the images using time series analysis methods, such as the frequency analysis method, as claims 3-7 disclose.

-Wherein the energy is optical energy, as claim 19 disclose.

-Claims 14-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Boggett et al. (US 6,263,227).

Boggett teaches a microvascular flow imager, comprising the following:

-Directing near infra-red energy into a target medium from a source during a period of time, target medium having dynamic property (Column 7, lines 1-10)

-Measuring the density of the energy emerging from the target medium, density of energy is a function of the dynamic property of the target medium. (Column 4, lines 14-28)

-Generating a map of dynamic properties of the target medium based on measured density of energy from the target medium. (Column 10, lines 10-20)

-Imaging blood in micro vessel, which naturally would have varying absorption and scattering properties to infrared energy as a function of blood oxygenation and blood volume.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

-Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izatt.

Izatt meets all the claims except that it fails to teach provoking the tissue to have a dynamic effect, or an autonomic response. However, it would have been an obvious matter of design choice to one having ordinary skill in the art at the time the invention was made to adapt Izatt's device and method for use in studies which induce exercise of the test subject to observe blood velocity while one is in motion.

***Allowable Subject Matter***

2. Claims 8, 9, 20, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

-Katayama et al. (US 5,291,886) teaches an apparatus for measuring blood flow, comprising scanning an in vivo tissue with laser, and calculating the blood flow from frequency-analysis of the time series data.

-Bambot et al. (US2003/0135122 A1) teaches a multi-modal optical tissue diagnostic system, comprising the use of multiple spectroscopic methods to detect tissue condition, map generation, intensity detection, and using frequency analysis method in generating the map.

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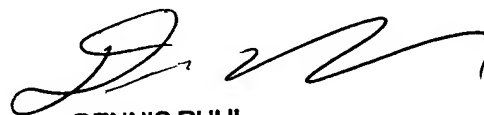
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeoyuh Lin whose telephone number is (703) 306-5990. The examiner can normally be reached on m-f, 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dennis Ruhl can be reached on (703) 308-2262. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0858.

JYL

JYL  
8/21/03



DENNIS RUHL  
PRIMARY EXAMINER